

इंटरनेट

मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 10838 (1984): Nylon Faced Hammers [PGD 6: Earth, Metal And Wood Working Hand Tools]



“ज्ञान से एक नये भारत का निर्माण”

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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
NYLON FACED HAMMERS

1. **Scope** — Specifies the dimensions and other requirements for nylon faced hammers.

2. **Dimensions**

2.1 The nominal size, nominal length and mass of the nylon faced hammers shall be as given in Table 1.

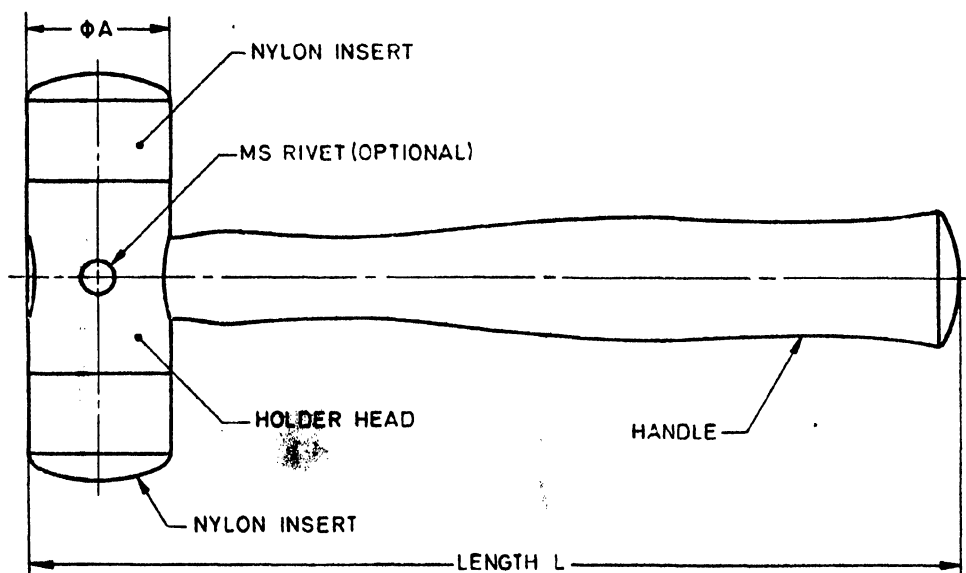
2.2 Dimensions of holder head and eye shall be as given in Table 2.

2.3 The Shapes and dimensions of the nylon inserts shall be as given in Table 3.

TABLE 1 NOMINAL SIZE, NOMINAL LENGTH AND MASS OF NYLON FACED HAMMERS

(Clause 2.1)

All dimensions in millimetres.



Nominal Size <i>A</i>	Nominal Length <i>L</i>	Mass of Complete Hammer <i>g</i> ± 10 Percent
19	210	150
25	250	200
32	300	350
38	310	500
45	355	700
50	355	1000

Adopted 24 January 1984

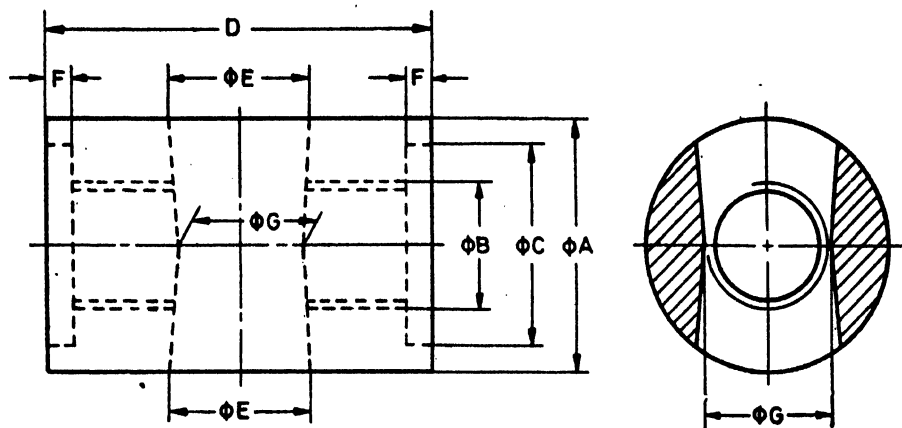
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TABLE 2 DIMENSIONS OF HOLDER HEAD AND EYE

(Clause 2.2)

All dimensions in millimetres.



Nominal Size	A	B	C	D	E	F	G	Mass of Holder Head g $\pm$ 10 percent
19	19	M10	14.5	33	13.5	1.5	12.7	48
25	25	M16	19.5	47.5	17.0	3.3	15.5	95
32	32	M16	25.5	51	18.5	3.5	16.5	180
38	38	M20	28.5	54	21.0	5.0	19.0	260
45	45	M24	35.0	60	24.0	5.5	21.0	375
50	50	M24	41.0	64	24.0	6.5	21.0	585

3. Material

3.1 Nylon inserts shall be made from suitable nylon resins meeting the requirements laid down in 5 and 9. Some suitable characteristics for the nylon resins are:

Specific gravity	1.13 to 1.15
Tensile strength, <i>Min</i>	570 Pa*
Elongation at Break, <i>Min</i>	170 percent
Notched impact strength	2 to 4 J†

3.2 Holder head shall be made from any suitable material like mild steel or cast iron.

4. Handle — Handle shall be made of any one of the suitable materials like wood, tubular steel or fibre-reinforced plastics.

*1 Pa = 1 N/mm² ($\approx$ 0.1 kgf/mm²)

†1J $\approx$ 10 kgf. cm

**AMENDMENT NO. 1 MAY 1996
TO
IS 10838 : 1984 SPECIFICATION FOR NYLON
FACED HAMMERS**

(*Page 5, clause 10, line 2*) — Substitute 'IS 2500 (Part 1) : 1992 Sampling inspection procedures: Part 1 Attribute sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection (*second revision*)' for 'IS : 2500 (Part 1) - 1973 Sampling inspection tables : Part 1 Inspection by attributes and by count of defects (*first revision*)'.

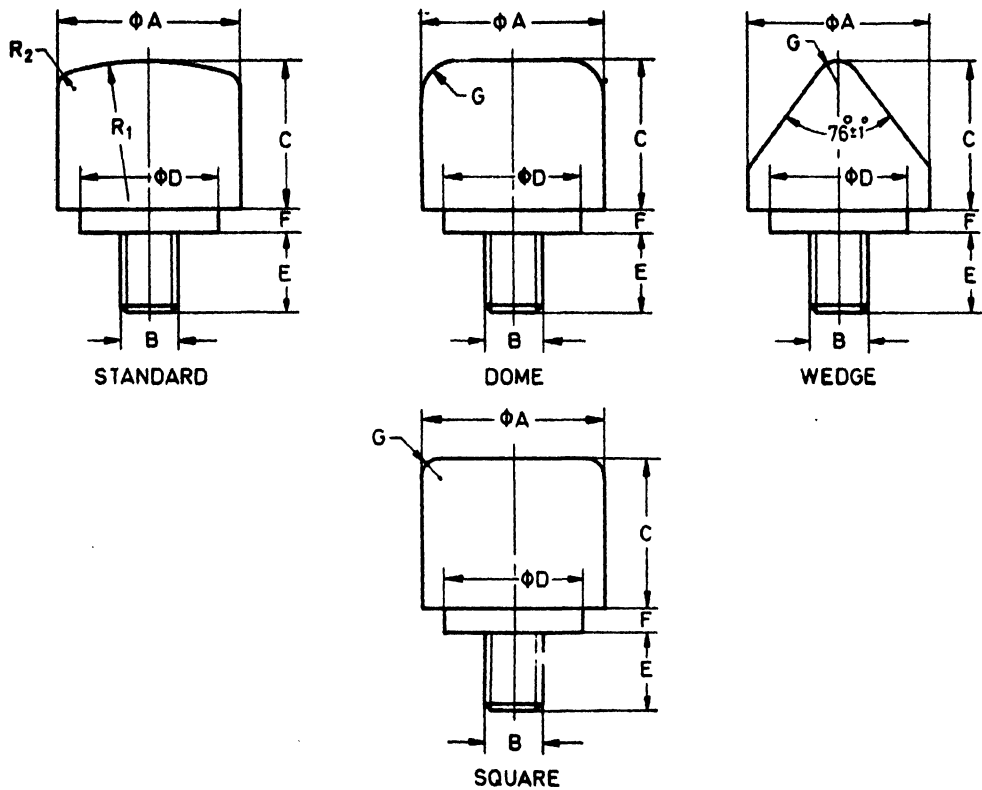
(*Page 5, clauses 10.1 and 10.2, line 2*) — Substitute 'Tables I and II-A of IS 2500 (Part 1) : 1992' for 'Tables 1 and 2 of IS : 2500 (Part 1) - 1973'.

(PE 06)

Reprography Unit, BIS, New Delhi, India

TABLE 3 SHAPES AND DIMENSIONS OF NYLON INSERTS
(Clause 2.3)

All dimensions in millimetres.



Nominal Size	Shape of Insert	A	B	C	D	E	F	R ₁	R ₂	G ± 0.5	Mass of Individual Nylon Insert g ± 10 percent
19	Standard Dome Wedge Square	19	M10	12.5	14	7.5	1.5	45	1	—	5
								—	—	4.2	
								—	—	3.2	
25	Standard Dome Wedge Square	25	M16	20	19	10.5	3	39	2	—	15
								—	—	5.0	
								—	—	3.2	
32	Standard Dome Wedge Square	32	M16	25.4	25	12.5	3	42	3	—	25
								—	—	5.8	
								—	—	3.2	
38	Standard Dome Wedge Square	38	M20	28.5	28	12.5	4	42	3	—	40
								—	—	6.5	
								—	—	3.2	
45	Standard Dome Wedge Square	45	M24	30	34.5	13	6	47	4	—	60
								—	—	8.0	
								—	—	4.1	
50	Standard Dome Wedge Square	50	M24	35	40.5	13.5	6	60	5	—	85
								—	—	9.5	
								—	—	5.0	

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5. Hardness — The nylon inserts shall be of three hardness grades; each grade having an identifying colour as given below:

Hardness Grade	Colour of Insert	Shore Hardness Range	Test Instrument
Soft	Grey or Brown	45 — 58	Type A Durometer
Medium	Red or Green	59 — 85	Type A Durometer
Hard	Cream or Black or Yellow	40 — 85	Type D Durometer

6. Designation — Nylon faced hammers shall be designated by nominal size, hardness grade, mass and shape of the inserts.

Example :

A nylon faced hammer of 32 mm nominal size of soft grade mass 350 g. and with dome shape nylon insert shall be designated as;

Nylon Faced Hammer 32 Soft 350 Dome IS : 10838

7. Manufacture and Workmanship

7.1 The holder heads shall be well shaped and free from burrs, cracks, roughness and other surface defects. The sharp edges of the eye shall be chamfered.

7.2 The holder head shall be of round cross section and of one piece construction. Each end shall have a recess which shall be suitably drilled and tapped at the centre to receive the nylon inserts. The design of head shall ensure tightness of the inserts under all working conditions, but shall allow the inserts to be readily removed, replaced or interchanged.

7.3 The handle shall be fitted in such a way that it does not rotate in the eye of the hammer during normal use.

7.3.1 Holder head when fitted with wooden handles, shall be secured with wedges made of either mild steel or wood or in combination of both.

7.3.2 Holder head when fitted with fibreglass-reinforced plastics handle shall be bonded by means of a chemical adhesive or otherwise affixed in the eye of holder head in a manner that the handle does not loosen during working conditions. The grip portion shall be covered with hard rubber, neoprene or other comparable material.

7.3.3 Tubular steel handle, if fitted with holder head, shall be press fitted. The grip portion of tubular steel handles shall also be covered with hard rubber, neoprene or other comparable material.

7.3.4 In order to avoid rotation of handle in the eye of hammer, a through rivet between holder head and handle may be provided for wooden and tubular steel types of handles (see figure in Table 1). Elliptical eye holes if desired by the purchaser may be provided in the holder head.

7.4 Unless otherwise specified by the purchaser, standard face shaped inserts shall be furnished with the hammer.

8. Finish — The holder heads and tubular steel handles shall be given suitable protective coatings like nickel chromium plating, galvanising or painting. These shall be finished smooth and bright all over. Wooden handles shall be given suitable varnish coating.

9. Tests — Nylon inserts shall be tested in accordance with 9.1 to 9.4. A new specimen shall be used for each test.

9.1 Heat Distortion Test — Suspend the sample for test in boiling water at 100°C for a period of 2 minutes. Remove the sample at the end of this duration. It shall show no significant distortion or blistering. Significant distortion or blistering here means an increase or decrease of at least 4 percent in the original dimensions of the sample, either a uniform or irregular bulge, blister or depression.

9.2 Impact Test at Room Temperature — Place samples, screwed, or otherwise arranged, to simulate actual use on a steel plate. Drop cylindrical mass as specified below through a length of seamless tubing of diameter slightly larger than that of the cylindrical mass, to ensure full force of the mass acting on the normal striking face. The sample shall not break, crack or significantly distort when the mass has been dropped 20 times from the appropriate height as specified below:

Diameter of Nylon Insert mm	Cylindrical Mass kg	Drop Height mm
19	4.5	650
25	4.5	710
32	4.5	780
38	4.5	840
45	6.8	910
50	6.8	960

9.3 Solvent Test — Submerge the test specimen completely in hydraulic oil conforming to IS : 3098-1965 'Specification for oil, hydraulic, mineral oil type (first revision)' for a period of 24 hours. The specimen shall not show increase or decrease in volume by 2 percent after removal of the samples from the solvent.

9.4 Permanent Distortion Test — Soak samples in water for 2 hours at $27 \pm 2^\circ\text{C}$. Test the samples within 2 minutes.

Clamp sample in a vice against the threaded surface of a M12x1.75 bolt. Tighten the vice until the bolt imbeds itself 6 mm into the head or insert face. After holding in this position for a period of 1 minute loosen the vice and remove the specimen. After a period of not less than 30 seconds and not more than 10 minutes, the specimen shall not show any permanent distortion and shall return to its original shape. Material returning to shape in less than 30 seconds or that requires more than 10 minutes to recover, shall be considered unsatisfactory.

9.4.1 This test shall not be applicable in case of hardgrade nylon inserts.

10. Sampling — Unless otherwise agreed to between the supplier and the purchaser the procedure given in IS : 2500 (Part 1)-1973 'Sampling inspection tables; Part 1 Inspection by attributes and by count of defects (first revision)' shall be followed for sampling inspection. For various characteristics the sampling plan as given in 10.1 and 10.2 shall be followed.

10.1 For dimensions, workmanship and finish the sampling plan with inspection level III and acceptable quality level (AQL) 2.5 percent given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

10.2 For hardness and other tests, the sampling plan with inspection level I and acceptable quality level (AQL) 2.5 percent given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

11. Marking — The hammers shall be marked with size, mass, manufacturer's name, initials and/or recognised trade-mark.

11.1 ISI Certification Marking — Details available with the Indian Standards Institution.

12. Packing — Hammers shall be packed according to the best trade practices or as agreed between the manufacturer and the purchaser.

EXPLANATORY NOTE

Nylon faced hammers are one of the hammers in the series of soft-faced hammers and are generally used in precision sheet metal work, electrical industry, fitting of ball bearings, chemical and petroleum industry, diesel engine manufacturing, precision die work, wagon and body building and similar other applications, without causing damage or bruising to the items. Bounce type nylon hammers are not covered in this specification.

In the preparation of this specification, assistance has been derived from the details supplied by the leading manufacturers in the country as well as Canadian Standard 39-GP-52a 'Standard for hammers, hand, soft face and mallets' issued by Canadian Government Specification Board.